

**REMARKS**

Claims 1-19 and 26-41 are pending in the current application. Claims 1, 6, 9 and 13 are in independent form. Claims 20-25, 42 and 43 have been withdrawn by the Examiner as being drawn to a nonelected mold.

Applicants appreciate the Examiner's acknowledgment in the Office Action that the terminal disclaimer filed on June 25, 2008 has been reviewed, was accepted on September 15, 2008, and has been recorded.

In view of the following remarks, favorable reconsideration and allowance of the present application is respectfully requested.

**I. RENEWED REQUEST FOR PTO FORM 892.**

Applicants note that page 2 of the March 25, 2008 Office Action discusses Nakanishi, U.S. Patent No. 6,228,898. However, the PTO Form 892 provided with that Action lists U.S. Patent No. 5,849,339 A, not U.S. Patent No. 6,228,898. Applicants submit that U.S. Patent No. 6,228,898 (filed December 14, 1998) is a divisional application of U.S. Patent No. 5,849,339 A (filed October 23, 1996).

In order to ensure that the correct information appears on the face of the patent that may issue from the present application, Applicants respectfully renew their request, originally submitted in the June 25, 2008 Amendment, that the Examiner provide a PTO Form 892 listing U.S. Patent No. 6,228,898 in the next Patent Office communication.

**II. REJECTIONS OVER CITED ART.**

**A. Rejections over Andersen et al., US 5,783,126 under 35 USC 102(b).**

The Examiner has rejected claims 1-6, 12-18, 26-28, 32, and 34-38 under 35 U.S.C § 102(b) as anticipated by Andersen et al., US 5,783,126 (herein “the ‘126 patent”). Applicants respectfully traverse this rejection.

As a threshold matter, Applicants note that the Examiner has included claim 37 in this rejection. Claim 37 has been found allowable by the Examiner. [Office Action p. 9]. Applicants respectfully submit that the inclusion of claim 37 in this rejection was an oversight.

**1. Coating Film.**

The Examiner states that the ‘126 patent teaches “applying coating film (See col. 5 lines 18-21) or selected coating material can be added to the mixture prior to formation of the article (See col. 10 lines 9-8; col. 13 lines 37-42).” [Office Action p. 3]. The Examiner further states that a “heating step is carried out . . . to heat and mold the molding material and the coating film in a mold having a given shaped cavity to mold the molding material through steam expansion, and at the same time soften and pressure bond the coating film to a surface of a biodegradable expanded molded article.” [Office Action pp. 3-4].

The portion of the ‘126 patent cited by the Examiner at column 5 of the ‘126 patent is part of a discussion in the “Background of the Invention”

section regarding the unsuitability of certain starch-based molding materials. In full, this discussion provides as follows:

Attempts have also been made to make articles using organic binders. For example, **articles have been made from mixtures of starch, water, and a mold-releasing agent**. The starch-based mixtures were baked between heated molds until the starch gelated and set in the desired shape for the articles. The resulting products, however, were found to be cost prohibitive. Slow processing times, expensive equipment, and the relatively high cost of starch compared to conventional materials made the articles more expensive than conventional articles. Although inorganic fillers have been added to starch-based mixtures in an attempt to cut material cost, mixtures containing any significant portion of fillers were unable to produce structurally stable articles that had functional mechanical properties.

Furthermore, **the starch-based articles** were found to be very fragile and brittle, giving them limited use. To improve flexibility, the articles were placed in a humidity chamber where the moisture was absorbed by the starch to soften the articles. The moisture absorption, however, took several minutes, significantly slowing down the manufacturing process. Furthermore, **an additional time-consuming step of applying a coating to the article was required to prevent the moisture from escaping from the article once the article was finished**.

[‘126 patent col. 4, line 64 to col. 5, line 20].

As can be seen from the full quotation, the reference to the application of a coating is in the context of a disadvantage of using starch-based molding materials, and the application of coating is referred to as occurring in a step separate from the molding process.

The discussion cited by the Examiner at column 10 of the ‘126 patent relates to coating molded articles wherein “the coating can be applied through various conventional processes such as spraying, dipping, sputtering, and painting,” and that in an alternative embodiment “coating materials can be added to the mixture prior to the formation of the article”

such that if a “coating material is used that has a similar melting point as the peak temperature of the mixture, it migrates to and coats the surface of the article during the formation of the article.” [’126 patent col. 10, lines 9-16]. Similarly, the discussion at column 13 of the ’126 patent relates to the use of additives with the molding material such as “coating materials, which can form a coating on the articles during the formation process.” [’126 patent col. 13, lines 34-39].

Claims 1 and 6 of the instant application each recites the inclusion of a “coating film” and “heating and molding the molding material and the coating film in a mold having a given-shaped cavity to mold the molding material through steam expansion, and at the same time soften and pressure-bond the coating film to a surface of a biodegradable expanded molded article obtained through steam expansion molding” (emphasis added). Claim 13 recites “heating and molding the molding material and the coating film in a mold having a given-shaped cavity to mold the biodegradable expanded molded article through steam expansion, and at the same time soften and pressure-bond the coating film to a surface of a biodegradable expanded molded article” (emphasis added).

Applicants respectfully submit that nothing in the cited passages of the ’126 patent teaches the use of a coating film or the heating, softening, and pressure bonding of a coating film to the surface of the molded article. Indeed, the cited passages relate to the use of liquid or otherwise sprayed-on or deposited coatings or the inclusion of coating materials in the molding material mixture to melt and “migrate to and coat the surface of the article.”

No coating film is described, no coating film is placed into the mold, and no coating film is heated and, at the same time, softened and pressure-bonded to the molded article.

For at least these reasons, the '126 patent does not anticipate any of claims 1, 6 or 13. *See, e.g., Net MoneyIn v. Verisign*, 545 F.3d 1359, 1369-70 (Fed. Cir. 2008)(“The four corners of a single, prior art document [must] describe every element of the claimed invention” and “[b]ecause the hallmark of anticipation is prior invention, the prior art reference—in order to anticipate under 35 U.S.C. § 102—must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements arranged as in the claim.”)(internal quotations omitted). Further, because each of claims 2-5, 12, 14-18, 26-28, 32, 34-36, and 38 depends directly or indirectly from claim 1, claim 6, or claim 13, and therefore includes each of the recited aspects of their respective base claim, the '126 patent does not anticipate any of claims 2-5, 12, 14-18, 26-28, 32, 34-36, and 38 for the same reasons it does not anticipate claims 1, 6, or 13.

Based on the foregoing, Applicants respectfully request withdrawal of the rejection and allowance of claims 1-6, 12-18, 26-28, 32, 34-36, and 38.

**2. Temperature “at least 10°C lower than the melting point” of the coating.**

Claim 13 recites “said heating being done so that the mold has a temperature not less than a softening point of the coating film and at least 10°C lower than a melting point thereof.” In the embodiment of the '126

patent that includes coating material in the molding material mixture, the coating material is described as follows:

The coating can be formed during the forming process by adding a coating material that has approximately **the same melting temperature as the peak temperature of the mixture**. As the mixture is heated, **the coating material melts and moves with the vaporized solvent to the surface of the article where it coats the surface**.

[‘126 patent col. 10, lines 9-16; col. 49, lines 14-20].

Applicants submit that the melting of coating so that they may migrate with a solvent to the surface of the molded article is inconsistent with the use of a “temperature not less than a softening point of the coating film and at least 10°C lower than a melting point thereof” as recited in claim 13 (emphasis added).

Claims 12 and 32, which depend from claims 1 and 6, respectively, also each recites “wherein the heating is done so that the mold has a temperature not less than a softening point of the coating film and at least 10°C lower than the melting point thereof.” As discussed above regarding claim 13, by teaching coating material having “approximately the same melting temperature as the peak temperature of the mixture” and that “melts and moves with the vaporized solvent,” the ‘126 patent is inconsistent with the temperature being “at least 10°C lower than a melting point” of the coating as recited in claims 12 and 32.

For at least these additional reasons, claims 12, 13, and 32 are not anticipated by the ‘126 patent. See, e.g., *Net MoneyIn*, 545 F.3d at 1369-70. Further, because each of claims 14, 15, 34, and 35 depends directly or

indirectly from claim 12 or claim 13, and therefore includes each of the recited aspects of their respective base claim, the '126 patent does not anticipate any of claims 14, 15, 34, and 35 for the same reasons it does not anticipate claims 12 or 13.

Based on the foregoing, Applicants respectfully request withdrawal of the rejection and allowance of claims 12-15, 32, and 34-35.

**3. Discharge of gas existing between coating film and mold surface.**

The Examiner states that the '126 patent teaches a "step of gas existing from the cavity with an exhaust hole (12, 16, and 18) of the mold (See figure 2; col. 18 lines 46-54; col. 19 lines 8-12; col. 23 lines 23-50)." [Office Action p. 4].

Instant claim 1 recites "in the heating and molding step, a gas existing between the coating film and a surface of the mold is discharged out of the cavity through the exhaust hole." The '126 patent discusses either applying a coating after the molded article is finished or including coating material in the mold mixture prior to formation of the article. The embodiment in which the coating is applied after the molded article is finished cannot, by definition, include "a gas existing between the coating film and a surface of the mold" because there is no coating present during the heating and molding process.

The '126 patent describes the embodiment involving the inclusion of coating material in the mold material as follows:

In an alternative embodiment, selected coating materials can be added to the mixture prior to the formation of the article. If a coating material is used that has a similar melting point as the peak temperature of the mixture, it **migrates to and coats the surface of the article during the formation of the article.**

\* \* \*

The coating can be formed during the forming process by adding a coating material that has approximately the same melting temperature as the peak temperature of the mixture. As the mixture is heated, **the coating material melts and moves with the vaporized solvent to the surface of the article where it coats the surface.**

['126 patent col. 10, lines 9-16; col. 49, lines 14-20].

This embodiment similarly does not include “a gas existing between the coating film and a surface of the mold” for at least two reasons. First, as discussed above no coating **film** is present in the mold mixture. Instead, only coating **material** is present, which purportedly melts and migrates with the solvent to the surface where, at some indeterminate point, becomes a “coating” of some sort (but not necessarily a “film”). Second, because the ‘126 patent states that the coating material “moves with the vaporized solvent to the surface of the article where it coats the surface,” the vaporized solvent escapes before the coating material is deposited. Thus, no “gas” exists between a “coating film and a surface of the mold” as recited in claim 1.

For at least this additional reason, claim 1 is not anticipated by the ‘126 patent. *See, e.g., Net MoneyIn*, 545 F.3d at 1369-70. Because claims 2-5, 12, 16, and 26-28 depend, directly or indirectly, from claim 1, and



therefore include each of the recited aspects of claims, claims 2-5, 12, 16, and 26-28 are also not anticipated by the '126 patent.

Based on the foregoing, Applicants respectfully request withdrawal of the rejection and allowance of claims 1-5, 12, 16, and 26-28.

**B. Rejections over Andersen et al., US 5,783,126 alone and in view of Okazaki et al. EP 0679509 A2 under 35 USC 103(a).**

The Examiner has rejected claims 7-8 and 29-30 under 35 U.S.C § 103(a) as obvious over Andersen et al., US 5,783,126 ("the '126 patent") and claims 19 and 41 over the '126 patent in view of Okazaki et al. EP 0679509 A2 (herein "EP '509"). Applicants respectfully traverse these rejections.

As discussed above, the '126 patent fails to teach or suggest at least certain aspects of claims 1 and 6. For example, the passages of the '126 patent cited by the Examiner relate to the use of liquid or otherwise sprayed-on or deposited coatings or the inclusion of coating materials in the molding material mixture to melt and "migrate to and coat the surface of the article," but no "coating film" is described, no coating film is placed into the mold, and no coating film is heated and, at the same time, softened and pressure-bonded to the molded article. Thus, the '126 patent fails to teach or suggest either of the following aspects of claims 1 and 6:

- "a coating film" or
- "heating and molding the molding material and the coating film in a mold having a given-shaped cavity to mold the molding material through steam expansion, and at the same time soften and pressure-bond the coating film to a surface of a biodegradable expanded molded article obtained through steam expansion molding."

Thus, the '126 patent does not render either of claims 1 and 6 obvious. Because each of claims 7-8, 19, 29-30, and 41 depends, directly or indirectly, from claim 1 or claim 6, those claims include each of the limitations of their base claim and are therefore not rendered obvious by the '126 patent for the same reasons that claims 1 and 6 are not rendered obvious.

In addition, the '126 patent discusses two embodiments for coating a molded article. First, an embodiment in which "[t]he coating can be formed during the forming process by adding a coating material that has approximately the same melting temperature as the peak temperature of the mixture" such that "[a]s the mixture is heated, the coating material melts and moves with the vaporized solvent to the surface of the article where it coats the surface." ['126 patent col. 49, lines 14-20; *see also* col. 10, lines 6-11]. Second, an embodiment in which a coating is applied by spraying, dipping, sputtering, or painting a completed molded article. ['126 patent col. 10, lines 9-16; *see also* col. 49, lines 22-29]. As discussed above, in both cases there is no "gas existing between the coating film and a surface of the mold." Thus, the '126 patent also fails to teach or suggest the following aspect of claim 1:

- "[I]n the heating and molding step, a gas existing between the coating film and a surface of the mold is discharged out of the cavity through the exhaust hole."

Thus, for at least this additional reason the '126 patent does not render claim 1 obvious. Because claims 7, 8, and 19 depend directly from claim 1, those claims include each of the recited aspects of their base claim

and are therefore not rendered obvious by the '126 patent for the same reasons that claim 1 is not rendered obvious.

Applicants respectfully submit that nothing in EP '509 cures the foregoing deficiencies of the '126 patent. Indeed, the Examiner cites EP '509 for "biaxially oriented laminated film as a biaxially stretched film with excellent scratch resistance, and friction property as well as excellent dubbing resistance" [Office Action p. 9], rather than for teaching or suggesting any of the missing aspects of the claims discussed above.

For at least these reasons, claims 7-8, 19, 29-30, and 41 are not obvious over the '126 patent taken alone or in view of EP '509. Based on the foregoing, Applicants respectfully request withdrawal of the rejection and allowance of claims 7-8, 19, 29-30, and 41.

## **II. ALLOWABLE SUBJECT MATTER**

Applicants thank the Examiner for the indication that claims 9-11, 31, 33, 37, 39 and 40 are allowable.

## **CONCLUSION**

Accordingly, in view of the above, Applicants' earnestly request reconsideration of the objections and rejections and allowance of each of claims 1-19 and 26-41 in connection with the present application.

Should there be any matters that need to be resolved in the present application; the Examiner is respectfully requested to contact the undersigned at the telephone number below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

HARNESS, DICKEY, & PIERCE, P.L.C.

By

A large, stylized handwritten signature in black ink, appearing to read 'BPS', is written over a horizontal line.

Bradford Paul Schmidt

Reg. No. 42,128

P.O. Box 8910

Reston, Virginia 20195

(703) 668-8000

DJD/BPS/hcw/dab